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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/659,948	09/12/2000	Richard T. Antony	SAIC0084	6163

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KILPATRICK STOCKTON LLP
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WASHINGTON, DC 20005

EXAMINER

DAY, HERNG DER

ART UNIT PAPER NUMBER

2128

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/659,948

Applicant(s)

ANTONY, RICHARD T.

Examiner

Herng-der Day

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. This communication is in response to Applicant's Reply ("Reply") to Office Action dated October 5, 2006, mailed December 5, 2006.

1-1. Claims 31-40 have been added. Claims 21-40 are pending.

1-2. Claims 21-40 have been examined and rejected.

Drawings

2. The replacement sheets received on May 10, 2006, are not acceptable and are objected to for the following reasons. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the Examiner, the Applicants will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2-1. As shown in Fig. 6, it appears that "Gets et operation and features" in step 30 should be "Get set operation and features" and "Free result rescources" in step 60 should be "Free result resources". At page 17 of the Reply mailed December 5, 2006, Applicant indicated, "Figure 6 has been corrected." However, replacement sheets have not been received.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 21-40 are rejected under 35 U.S.C. 101 because the inventions as disclosed in claims are directed to non-statutory subject matter.

4-1. Regarding claims 21-40, it appears to be directed merely to the manipulation of an abstract idea of performing Boolean operations among two regions for (boundary, boundary) indexing cell without resulting in a practical application producing a concrete, useful, and tangible result.

In this instant application, what is claimed appears to be nothing more than using a computer to perform Boolean operations among two regions represented as vector tuples. In other words, the claims are directed to a “mathematical algorithm” that is not limited to a practical application, i.e., it does not produce a “useful, concrete, and tangible result.”

As defined in the third edition of Microsoft Press Computer Dictionary (1997), **region**: 1. An area dedicated to or reserved for a particular purpose. 2. In video programming, a contiguous group of pixels that are treated as a unit. Accordingly, with the broadest reasonable interpretation, performing Boolean operations in a digital computer among two regions is not necessarily to have any correspondence to something in the real world. It is a manipulation of an abstract idea without resulting in a practical application producing a concrete, useful, and tangible result. In other words, transformation of data by a machine or a machine-implemented process where the data has no correspondence to something in the real world would not produce a “useful, concrete and tangible result.” An “abstract idea” (e.g., a mathematical algorithm)

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cannot be converted into a statutory "process" under § 101 by claiming it is performed on a machine.

The recited "accumulating result tuples" provides additional manipulations of an abstract idea of performing Boolean operations among two regions. Added new claims recite "displaying the result of the operation on a display of the digital computer" can provide a tangible result.

However, because the recited regions ^{and result of the operation are} represented as vector tuples do not necessarily correspond to any "real world" system or process, claims 21-40 at least fail to recite usefulness of what was performing.

Allowable Subject Matter

5. Claims 21-40 are deemed novel and non-obvious over the prior art of record and would be allowable if the above rejections under 35 U.S.C. 101 are overcome.

Applicant's Arguments

6. Applicant argues the following:

6-1. Claim Rejections - 35 USC §101

(1) "The undersigned draws the Examiner's attention to Annex IV of the Guidelines for Subject Matter Eligibility, OG Date: 22 November 2005 for one basis under which the claimed subject matter (at least Claims 26-30) is patentable (bold emphasis added)." (page 18, paragraph 2, Reply).

(2) "The subject matter of Claims 26-39 can be seen as functional descriptive material, e.g., consisting of data structures (regions represented as tuples) and computer programs which

impart functionality when employed as a computer component. Regions represented as tuples present a physical or logical relationship among the tuples, designed to support specific data manipulation functions such as Boolean operations.” (page 19, paragraph 4, Reply).

(3) “In Claims 26-30, a computer program product including a computer readable medium and various modules is claimed. In each case, the claims explicitly call for an interrelationship between the data structure (e.g., regions represented as vector tuples), and the computer software and hardware components (e.g., a digital computer, a computer program product) which permit the data structure’s functionality (e.g., vector tuple representation of the result of a Boolean operation between regions) to be realized, i.e., a tangible result.” (page 20, paragraph 1, Reply).

Response to Arguments

7. Applicant’s arguments have been fully considered.

7-1. Applicant’s arguments (1)-(3) are not persuasive. Applicant argued and referred to Annex IV of the *Guidelines for Subject Matter Eligibility*, OG Date: 22 November 2005 for one basis under which the claimed subject matter (at least Claims 26-30) is patentable. The Examiner respectfully disagrees with the Applicant’s arguments.

The U.S. Patent and Trademark Office (USPTO) has issued Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility (“Guidelines”), 1300 Off. Gaz. Patent and Trademark Office 142 (Nov. 22, 2005). The Guidelines are intended to instruct examiners on how to apply the law to the facts.

In this instant application, what is claimed appears to be nothing more than using a computer to perform Boolean operations among two regions represented as vector tuples. In other words, the claims are directed to a “mathematical algorithm” that is not limited to a practical application, i.e., it does not produce a “useful, concrete, and tangible result.”

State Street did not define the terms “useful, concrete and tangible.” The Examiner presumes “useful” refers to the utility requirement of § 101, although utility is generally considered a separate requirement from the eligible subject matter (“process, machine, manufacture, or composition of matter”) requirement. See Robert L. Harmon, *Patents and the Federal Circuit* 40 (4th ed. Bureau of National Affairs, Inc. 1998) (“It may be useful to think of eligibility as a precondition for patentability, and of utility as one of the three fundamental conditions for patentability, together with novelty ... and nonobviousness”); Lundgren, 76 USPQ2d at 1395-96.

Accordingly, it may be useful to think of the *Guidelines for Subject Matter Eligibility* as a precondition for patentability. However, because the recited regions represented as vector tuples do not necessarily correspond to any real world system or process, claims 21-40 fail to recite a practical application producing a “useful, concrete and tangible result” and are not patentable subject matter.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The Examiner can normally be reached on 9:00 - 17:30.

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Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kamini S. Shah can be reached on (571) 272-2279. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Herng-der Day
December 28, 2006

H.D.



KAMINI SHAH
SUPERVISORY PATENT EXAMINER